



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/784,055	02/20/2004	Robert E. Buxbaum	REB-13602/01	6857

  

25006	7590	12/27/2007
GIFFORD, KRASS, SPRINKLE, ANDERSON & CITKOWSKI, P.C		
PO BOX 7021		
TROY, MI 48007-7021		

  

EXAMINER	
WARTALOWICZ, PAUL A	

  

ART UNIT	PAPER NUMBER
1793	

  

MAIL DATE	DELIVERY MODE
12/27/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/784,055	Applicant(s) BUXBAUM, ROBERT E.	
	Examiner Paul A. Wartalowicz	Art Unit 1793	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 16-25 is/are pending in the application.
- 4a) Of the above claim(s) 1-15 and 26 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 16-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Towler et al. (U.S. 6409974) in view of Krumpelt et al. (U.S. 6967063).

Towler et al. teach a process for forming hydrogen from a feedstock (col. 1) wherein a feedstock is heated with a fuel exhaust stream (col. 10) and then is fed to a reformer and an endothermic product and hydrogen are produced (col. 4, 6) and then fed to a shift reaction zone (col. 7) wherein hydrogen gas and waste gas are produced (col. 8), wherein the waste gas is burned to provide heat to the reformer reaction (col. 8, 9).

As to the limitation of burning feedstock to said burner to provide heat to the reactor, Towler teach that the burner fuel comprises natural gas, which is the composition of the feedstock (col. 5, 9). This burner fuel is fed to the combustion zone with combustion gas at efficient conditions (col. 6).

Regarding the limitation of said feedstock is preheated within a pump supplied boiler, it appears that this limitation is a product by process limitation. The product in this case is a preheated feedstock. It appears that the preheated feedstock of the prior art is substantially similar as that of the prior art. When the examiner has found a substantially similar product as in the applied prior art, the burden of proof is shifted to the applicant to establish that their product is patentably distinct and not the examiner to show the same process of making. *In re Brown* 173 USPQ 685 and *In re Fessman* 180 USPQ 324.

Regarding the limitation of monitoring the temperature and pressure, Towler teach monitoring temperature (col. 6). Although Towler does not explicitly teach monitoring pressure, one of ordinary skill in the art would be motivated to monitor pressure as Towler teach monitoring reaction conditions (col. 6).

As to the limitation of "providing feedstock to an exothermic reactor" and "allowing sufficient resonance time for said feedstock in said reactor to undergo an endothermic reaction", it appears that these limitations are contradictory and it is unclear what is being claimed.

Regarding the limitation wherein combustible flow gas is provided stoichiometrically to burn raffinate, one of ordinary skill in the art would recognize the

advantages of providing stoichiometric amounts of combustible gas such as efficiency and optimization of the reaction between the combustible gas and the raffinate.

Towler fails to teach that the gas shift reaction takes place in a membrane reactor.

Krumpelt teaches producing hydrogen from a carbonaceous fuel (col. 1) wherein a membrane water-gas shift reactor is used for the purpose of increasing hydrogen concentration in the hydrogen-rich gas produced (col. 4).

Therefore, it would have been obvious to one of ordinary skill in the art at the time applicant's invention was made to provide a membrane water-gas shift reactor used in Towler in order to increase hydrogen concentration in the hydrogen-rich gas produced (col. 4) as taught by Krumpelt.

**Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul A. Wartalowicz whose telephone number is (571) 272-5957. The examiner can normally be reached on 8:30-6 M-Th and 8:30-5 on Alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Paul Wartalowicz  
December 18, 2007

/Steven Bos/  
Steven Bos  
Primary Examiner  
A.U. 1793